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ABSTRACT

This report was prepared as part of the School Organization Program, a program focusing on authority-control structures, task structures, reward systems, and peer group processes in schools. It contains five papers delivered at an American Education Research Association Symposium. The papers examine current research on the effects of school organization and social contexts. The presentations emphasize different definitions of major school organization of contextual elements (reward, authority, and demographic structures), different causal mechanisms for school effects (reinforcement, participation, and reference group theories), as well as methodological issues that crosscut various research approaches (consideration of person-environment interactions and the choice of student outcomes as dependent variables). Included are "Building an Effective Classroom Reward Structure" by Robert E. Slavin, "School Authority Systems and Student Motivation," by James M. McPartland, "Social Network Models and Social Demography Theories" by Nancy L. Karweit, "Family and School Interactions and Main Effects on Non-Academic Outcomes" by Joyce L. Epstein, and "Differential Educational Payoff Models and Theories of the Diversity of Human Talents" by Linda S. Gottfredson. Two discussions of the papers conclude the report, one by Sarane S. Boocock and another by Wilbur B. Brookover. (Author/JM)

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September 1977

ALTERNATIVE RESEARCH PERSPECTIVES ON THE EFFECTS OF SCHOOL ORGANIZATION AND SOCIAL CONTEXTS

An American Education Research Association Symposium

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Discussants

Sarane S. Boocock
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Baltimore, Maryland

Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Policy Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes.

This report, prepared by the School Organization Program, contains the text of papers delivered and discussants' remarks at an AERA symposium examining alternative research perspectives on the effects of school organization and social contexts.

Abstract

This report presents five papers delivered at an AERA symposium that examine current research on the effects of school organization and social context. The papers include Family and School Interaction and Main Effects on Non-academic Outcomes; Differential Educational Payoff Models and Theories of the Diversity of Human Talents; Social Network Models and Social Demographic Theories; School Authority System and Student Motivation; and Building an Effective Classroom Reward Structure.

The papers are followed by the symposium discussants' critiques and remarks.

INTRODUCTION

ALTERNATIVE RESEARCH PERSPECTIVES ON THE EFFECTS OF SCHOOL ORGANIZATION AND SOCIAL CONTEXTS

JAMES M. McPARTLAND, Johns Hopkins University, Organizer
EDWARD L. McDILL, Johns Hopkins University, Chairperson

How can schools be organized in different ways, and how can we study the processes through which alternative organizational forms influence important student outcomes? This symposium will contrast five research perspectives on these questions. The presentations will emphasize different definitions of major school organization of contextual elements (reward, authority and demographic structures), different causal mechanisms for school effects (reinforcement, participation and reference group theories) as well as methodological issues which crosscut various research approaches (consideration of person-environment interactions and the choice of student outcomes as dependent variables).

"Classroom Reward Structures and Reinforcement Theories" by Robert Slavin (Johns Hopkins) will review typologies of alternative classroom reward systems and present knowledge of how these alternatives affect the formal and informal incentives for student learning. Included will be a description of research findings on how reward interdependencies in classrooms (i.e. reinforcement of group performance) can elicit informal student approval of academic achievement under certain conditions. The theoretical principles of reinforcement psychology and student motivation will be stressed.

"School Authority Systems and Participation Theories" by James McPartland (Johns Hopkins) will outline a typology for describing

authority-control systems in schools and will review theories on how student choice and participation in school decisions may be related to school climate or student motivation. New results from recent studies of student involvement in decision-making will be presented which test hypotheses concerning the legitimacy of school rules and students' attention to their long range goals.

"Social Network Models and Social Demography Theories" by Nancy Karweit (Johns Hopkins) will present recent research on measures of peer group structure and social connections to suggest ways in which the organizational boundaries in schools (i.e. formal groupings of students by program, track, activities, and age) can constrain interpersonal influence processes and reference group identifications.

"Person-Environment Interaction Effects and Theories on Family-School Congruence" by Joyce Epstein (Johns Hopkins) will consider hypotheses that have been enumerated in educational theories on how student reactions to school differences will depend upon the particular family conditions that the student has experienced. Hypotheses that a match between family and school styles improves student adjustment to the classroom while certain incongruences between family and school experiences can result in greater student growth on particular outcomes are assessed in light of recent studies on interaction effects in open classrooms.

"Differential Educational Pay-off Models and Theories of the Diversity of Human Talents" by Linda Gottfredson (Johns Hopkins) will present recent research which suggests that the returns to education

in terms of occupational status and income are different for six broad classes of job types. Because these studies suggest that educational credentials and academic achievement count less for success in some specific types of adult occupations than others, this research points to important non-academic student talents which schools could enhance but presently may not.

Issues raised by these different perspectives will be discussed by Sarane S. Boocock (Rutgers University), and Wilbur B. Brookover (Michigan State University).

BUILDING AN EFFECTIVE CLASSROOM REWARD STRUCTURE

Robert E. Slavin

In the course of a class I was teaching recently about cooperation and competition, I learned from my students about "throating," or "cutthroating." Johns Hopkins places an exceptional emphasis on grades because a large number of undergraduates plan to apply to medical school. The principal means of giving grades is on a strict curve--a highly competitive reward structure. Throating is a term used at Johns Hopkins University to refer simultaneously to working hard on academic tasks and to trying to hurt the performance of other students to improve one's own position on the grading curve. Examples of throating include stealing books from the library so that others cannot use them, diluting others' chemicals in laboratory exercises, and the like. My students assured me that the practice was widespread, and that the term was widely used.

I brought up "throating" to point out what we should already know (but sometimes seem to forget): every school has a reward structure which has a major impact on the academic performance, peer norms, and other behaviors and attitudes of students. A reward structure is simply the rules under which rewards are dispensed. For example, "grading on the curve" is a reward structure in which the rewards are grades (exchangeable for parent approval, feelings of self-worth, or entry into college or professional school). It is a <u>competitive</u> reward structure, which means that one student's success requires another's failure. Most classroom reward structures are variations on this theme. However, occasionally schools use <u>individual</u> reward structures, in which a student

is judged against an objective criterion (such as 90% mastery) or against an individually determined standard (for example, doing 50% better on a posttest than on a pretest). Finally, some teachers use a cooperative reward structure every once in a while. An example of a cooperative reward structure is a laboratory group in which the group prepares one report and receives a single grade.

How important is the reward structure of the classroom? One can argue that it is the most important manipulable feature of the classroom setting. Studies on what is taught, teacher style, methods of delivery, and the like have been notoriously ineffective in demonstrating important changes in student behavior due to variations on these dimensions (Hamblin, Buckholdt, Ferritor, Kozloff, and Blackwell, 1971). On the other hand, major changes in reward structures have been associated with changes in student behavior. Researchers in the operant tradition have been consistently successful in increasing students' on-task behavior (e.g., Kazdin and Klock, 1973), quiz performance (e.g., Hopkins, Schutte, and Garton, 1971), and adherence to class rules (e.g., Ayllon and Roberts, 1974), by implementing simple, highly contingent reward systems such as token economies or simply contingent teacher praise in classrooms. In our own research at the Center for Social Organization of Schools on cooperative reward structures we have found consistently positive effects on academic performance, time on task, pro-academic peer norms, and other variables (DeVries and Slavin, 1976).

Building an Effective Classroom Reward Structure

Given, then, that the reward structure of the classroom is at least one of the most important manipulable features of the educational process, how should an ideal system be constructed? First, it must adhere to a few basic principles of behavior (summarized from Bandura, 1969). These are as follows:

1. Appropriate behavior must be reinforced. The failure of the pass-fail experiments in universities (Gold, Reilly, Silberman, and Lehr, 1971) should lay to rest the notion that students study for the sake of learning alone; they also study because they are rewarded for studying.

2. Reinforcers must be available to all students, but not too easily available. As obvious as this sounds, this is the major failing of traditional reward systems. For many students, the chances of making an acceptable grade (A or B) are exactly nil. Other students can achieve these rewards without much effort. In these circumstances, it is hardly surprising that a substantial number of students turn themselves off as learners and do only what is required to be promoted, which in most schools is not much.

3. Reinforcers should be delivered close in time to the occurrence of the behavior they reinforce to be maximally effective. For younger students, less able students, and students who have not yet learned to delay gratification, a grade delivered every six or nine weeks is unreal. Such students may decide that grades are determined primarily by fate, by teacher eccentricities, or the like. Even with a clear

intellectual understanding of where grades come from, it is terribly hard for anyone to "turn over a new leaf" and maintain an improved level of performance for six, nine, or twelve weeks. Even when this is possible, the reward system may not be sensitive enough to recognize and reinforce an increase in performance level in a student who has been a low performer.

It must also be recognized that reward systems have multiple outcomes. The existence of "throating" at Johns Hopkins is probably a direct consequence of the curve grading system in which students must compete for very scarce and powerful rewards (primarily medical school entry). In my own undergraduate experience at a school in which grades were given but not told to students or otherwise emphasized, there was no term or practice which corresponded to "throating." The problem with the Hopkins system is that it creates both "throating" and a strong peer norm against "throating," which includes hard studying or appearing too often to know the answer. Thus, not only does a highly competitive reward structure produce a set of behaviors that are clearly undesirable (such as cheating and destruction of others' work), but it produces a set of peer norms which <u>oppose</u> exhibition of the behaviors that the institution seeks to increase, i.e. studying, participating in class, etc. In elementary and secondary schools, these anti-academic norms may be quite strong, creating for some students a reward structure in which academic achievement is more effectively punished by peers than it is rewarded by teachers and parents.

A Model Reward System

One thing that is wrong with traditional grading is that it combines motivation and evaluation. Motivation is defined here as the procedures used to induce students to perform academic tasks that they would not perform without some kind of incentive. Evaluation is defined as information that tells how much a student can really do in a subject area. Evaluation must be made on a single standard. It is unfair to do what many schools do, which is to try to give grades on an individual standard, such as grades that reflect "effort" or achievement above or below some expectation. This system is unfair because grades are often used for placement, admissions, and the like. For those purposes, we need some idea of which students are the most and least able, not a record of how much "effort" a student is supposed to have exerted. If students are able to use evaluations as feedback to develop standards for themselves, those evaluations must have meaning. True evaluation should give an accurate and norm- and/or criterion-referenced picture of a student if it is to be useful as evaluation.

On the other hand, motivational incentives need not be given on a single standard. We know that motivation is a function of the probability of success, where moderate levels of probability of success result in the greatest motivation (Atkinson, 1958). Wherever we set a single standard, many students will have a probability of success equal to zero, resulting in no motivation; many others will have a probability of success equal to 1.0, where motivation is similarly low.

Motivation and evaluation are also incompatible in terms of optimal frequencies. Motivational incentives should follow behavior rather closely; evaluation need not occur nearly so often.

A model reward system for schools would clearly separate motivation and evaluation. It should provide incentives for academic performance frequently, and should make success available to all students. On the other hand, it should provide evaluations infrequently, and have them be fair and based on a single standard. The following system presents a means of implementing these principles in elementary and secondary schools. The system would include the following elements:

1. Infrequent evaluation. Evaluation can be an incentive. All humans like to be positively evaluated. However, evaluation must also be used to make decisions about students and used as feedback by students to give them realistic assessments of their various capabilities--it is no favor to students to continue to tell them they are doing fine and then to inform them at the last minute that they cannot be in the academic track, go to college, etc. As a consequence, realistic positive evaluations cannot be given to everyone. Thus, to the degree that evaluation is accurate, it is poor as an incentive, since positive evaluation is out of reach of some and too easy for others.

The solution to this dilemma is to give evaluations infrequently--no more than four times per year. Ideal evaluations would be feedback that is comparable from subject area to subject area and from year to year. For example, if nationally standardized tests were used as evaluations, a student could accurately know his strengths and weaknesses and know how much he had really improved from year to year. In subjects where nationally standardized tests are not available, teacher-made tests could be used to achieve the same effect by adjusting class scores to the same mean and standard deviation the class has on a related standardized test. That is, if a class in American Literature has a reading level

of 8.0, the adjusted mean on a teacher-made literature test for the class would also be set at 8.0.

2. Frequently administered incentives. At least once each week, students would be rewarded for their academic performance that week. The reward could be recognition in a class newsletter, a certificate of accomplishment, free time, or the like. It could be administered in several ways. First, the reward could be based on an individual's performance net of his past performance. That is, students would be rewarded for doing better than they might have been expected to do based on earlier quizzes, standardized tests, etc. Such a system could resemble handicapping in golf or bowling, in which competitive success is made available to all. Motivation should be coupled with feedback that students can use to tell whether they are doing better or worse over time--but not necessarily how they are doing compared to other students. We recently evaluated such a system in a ten-week study (Slavin, 1977a). We found in that study that students who received weekly feedback about their performance as compared to that of five others of similar past performance were on task significantly more than were control students studying the same material on the same schedule. The experimental classes were observed to be on task 82.2% of their task opportunities, while the control classes were on task only 72.8% of theirs ($X^2(1) = 4.55$, $p < .05$).

Second, rewards could be based on the performance of a heterogeneous student team. This system is advantageous because by making students dependent on one another for rewards, they are motivated to encourage each other to perform. In six years of field research on such student

team techniques, we have found consistent effects of student teams on peer support for academic performance, time on task, and frequency of peer tutoring as compared to traditional control groups. We have found almost as consistent effects on academic achievement (DeVries and Slavin, 1976). These techniques have addicionally had positive effects on important social dimensions, such as cross-racial friendship (DeVries and Slavin, 1975), mutual attraction (DeVries and Slavin, 1976), and related variables.

These cooperative techniques were used in a format much like that suggested in this paper--all took place in settings in which weekly newsletters rewarded the short-term performance of the groups, while evaluative grades were given every nine weeks. In one study (Slavin, 1977b), we assessed the effect of the individual grading on students who had received the weekly newsletters. We gave a questionnaire on students' satisfaction, apathy, and motivation in the eighth week of the study (one week before grades were issued) and at the end of the study (two weeks after grades were issued). The results showed no differences between the two testing periods ($F(1, 97) = 0.37$; $p > .10$). Thus, in this study, the evaluation structure (grading) did not interfere with the motivation structure (newsletters). On the other hand, the team classes were observed to be on task significantly more than non-team classes, 93% for the team classes vs. 77% for the non-team ($X^2(1) = 37.08$; $p < .001$).

Finally, rewards could be based on mastery of a given unit of a curriculum, or some other individually prescribed standard.

Any of these incentive systems would be likely to have a positive

impact on student motivation, as they make rewards available to all students and they reward academic performance frequently. Further, it is hard to imagine "throating" occurring under such a system of rewards and evaluations, as incentives would be based on individual or group standards, not competitive standards, and evaluation would be based on actual or simulated national norms.

What is needed at this point are studies conducted over substantial time periods which evaluate the effects of various incentive-evaluation systems on a multitude of outcome variables. As a science, we are nowhere close to the point where we can say in advance what an effective classroom reward structure would look like. This paper makes some suggestions, but there is a long and hard road of practical field research ahead before we can say how schools should motivate and evaluate students.

In summary, a system of frequent motivation and infrequent evaluation could open up many possibilities for influencing student behavior. Whether the systems described in this paper are sensible and practicable or not, this paper suggests that it is in the reward structure of the classroom that major changes in student behavior will be effected.

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SCHOOL AUTHORITY SYSTEMS AND STUDENT MOTIVATION

James M. McPartland

The classroom incentive theorists assume that student motivation depends mainly on the immediate returns that the students receive for their behavior. These theorists seek to increase student motivation to work hard at learning tasks by arranging a reward and task structure that will regularly recognize and respond to student effort at mastering their school work. My assignment for this symposium is to consider alternative organizational reforms of schools, that may appeal to different motivational sources other than immediate or short-run rewards, and to comment on their applicability to typical public school populations.

I will review how the distinction between short-run and long-run returns is similar to familiar distinctions made by organizational theorists concerned with control mechanisms and by educational psychologists interested in types of student motivation.

Then, I will offer some ideas on how variations in the schools' authority structure may be related to the strengthening of long-run goals as a source of student motivation for learning activities.

Educational and organizational theorists have made distinctions about types of motivation and mechanisms of control that use different terms but have important similarities to the distinction between short- and long-run returns. Educational theorists have discussed extrinsic, intrinsic and internal motivation and organizational theorists have classified control mechanisms as remunerative, coercive or normative.

Extrinsic motivation finds its source in the immediate rewards or punishments that can be expected from authorities or peers for particular behaviors. These are the formal and informal reinforcers that follow soon after a student's actions. Organizations appeal to these motivational

sources when they use remunerative control based on the manipulation of material resources or rewards and when they use coercive control based on the application or threat of sanctions and restrictions.

Intrinsic motivation derives from inherent features of the immediate task. Some psychologists believe that certain tasks can be rewarding in themselves even though there may be no rewards from others that follow the particular behavior. Some believe that human beings find particular task features appealing -- such as novelty, social contacts, spontaneity, uncertainty and change, or simply the successful completion of a job that requires some competence. But the rewards are immediate: they derive from the task activity itself.

Internal motivation is distinguished from the other types in that it depends neither upon immediate returns from authorities or peers nor upon immediate satisfactions from the task itself. A person who is capable of ignoring immediate rewards must have some compensating rewards or overriding standards to motivate his or her actions. In simplest terms, these compensating inducements can be described as future or long-range returns for which immediate behavior has some instrumental meaning. When an organization's major goals are also important internalized long-term goals of its individual members, organizational theorists speak of "normative control." In this ideal situation, an organization does not have to establish elaborate supervisory and immediate incentive systems to control or motivate its members, because it can depend on the shared goals to ordinarily produce the desired behaviors.

Let's consider how the structure of public schools may be related to possibilities for normative control and motivation from long-term rewards.

Organizations can appeal to the long-run interests of its members that coincide with the organization's main goals through (1) recruitment or selection, and (2) socialization processes. They either enroll members who have previously developed appropriate long-term interests and who see the connection between these interests and the desired behaviors in the organization, or they try to develop the appropriate norms and their behavioral connections. Public schools appear to be at a great disadvantage compared to many other organizations with regard to selection of its members (they are not free to choose only the students they want, or to weed out anyone they don't want), but schools may have some unusual inherent opportunities with regard to socialization processes.

There should be a natural alliance between schools' and students' long-range goals. A primary function of schools is to teach students the skills and competencies they will need as adults, and all surveys show that students want schools to help them get ahead in life. The problem in establishing this alliance seem to be (a) that school demands and regulations are also meant to achieve other goals (such as administrative efficiancy and custody) which students do not always share and may actively resist, and (b) most students have not developed strong long-term goals and cannot see the connection between the daily demands of classroom instruction and their own potential long-term interests.

There is some evidence that each of these problems of socializing students to long-range goals can be addressed by modifications in the school authority system to permit student participation in school decisions.

Schools can involve students at two points in the decision-making processes. First, students may participate in the "governing decisions" that establish the school rules and regulations and that define the specific

academic or non-academic alternatives that are available for student selection. In the longer version of this paper, I present some indirect evidence that student involvement in governing decisions can make otherwise unattractive rules and regulations more acceptable to a student population. In other words, student participation in decision-making may serve to neutralize the importance of some school goals (such as orderly administration) that students do not naturally share.

Second, students may participate in "consumer decisions" by exercising significant choice among alternative academic offerings that may be provided in the school. I will present some other indirect evidence to suggest that certain academic choices can get students thinking about their long-range goals and make them receptive to information about the connection between classroom activities and their own career or adult goals. In other words, participation in consumer decisions may help to activate the shared long-run goals between students and schools. In addition, we have evidence that giving students regular practice in making independent decisions builds their confidence in relying on their own personal standards and enduring interests.

If schools are to more effectively appeal to the long-range goals of students, they may need to direct more student attention to career and adult goals and to persuade them that behavior in school has important consequences for these goals. I will argue that a part of the problem is that students are <u>rarely</u> confronted with individual decisions for which information about long-term returns is relevant, nor are they given <u>practice</u> in schools at developing self-reliance and responsibility for their own actions. Instead, important decisions about academic choices are made <u>infrequently</u> or are made <u>for</u> students by the program and course assignments from school authorities. The student is a

passive client who receives the treatments that a professional has decided are appropriate. Without the need to make consumer choices about the school courses and experiences to be taken, there is no reason to seek information about the potential consequences of school work and there is no practice at assuming independent responsibility for one's own actions.

In a study of 14 urban high schools we conducted in 1970, there was one school which provided an unusual degree of student choice of courses and teachers. This school conducts its academic program according to what it calls the "quarter system." The students in this all black inner city school are presented four times a year with a catalog of course offerings for each quarter and are permitted to choose the courses and teachers to which they will be assigned. For example, in the selected school, 60 percent of the students reported a great deal of say in selection of teachers or courses while the average percent in the other 13 schools was only 7 percent. In the selected school, 48 percent of the teachers gave the same reports, while less than 2 percent was the average teacher response in the other schools.

If choice forced on individuals does nothing else, it should create a need for information on which to judge the alternatives, and it should create pressure on the individuals to develop a "strategy" with which to make selections. Depending on whether the alternatives presented to students are varied and explicit about content and obligations, we would expect students to be more aware of both their own strengths and weaknesses and of the long- and short-run consequences of the alternative choices. The survey data permit us to examine one of these outcomes: the attention on the part of students to information about long-run academic plans.

Table 1 shows that there are no statistically significant differences in expressed college plans between the students in the academic-choice school and those in other schools, (after differences in grade, sex, race and SES are taken into account). On the other hand, there is a statistically significant difference in "college-related activities": the students in the academic-choice school are more likely to have read college catalogs, communicated with specific colleges, and talked at length with teachers and with counselors about particular colleges. This significant relationship is not reduced when the students' expressed plans for college is added as a control variable along with grade, sex, race, and SES. In other words, the students who have been forced to make regular academic choices in high school seem to be more aware of, and have paid more attention to, information about long-run academic consequences of their education.

I do not cite this evidence from a single school to argue only that providing regular academic choices in all high schools will be a major improvement (although I do believe it would be a step in the right direction). I would prefer to urge that we think about many various ways of requiring students to make regular choices that have real differences and real consequences, in order to capture their attention for various long-range goals and to provide regular reasons for them to seek information on how their behavior as students may be related to long-range goals.

Related evidence on how requiring student participation in academic consumer decisions may help develop internal motivation can be drawn from a recent study of "open" and "traditional" schools. Open schools frequently provide students with regular academic choices of classroom

TABLE 1

SUMMARY OF REGRESSIONS OF COLLEGE PLANS AND COLLEGE-RELATED ACTIVITIES ON ACADEMIC CHOICE SCHOOL, GRADE, SEX, RACE, AND SES

(b= standardized regression coefficient; t= associated test statistic)

Independent Variables	Dependent Variables: College Plans		College Related Activities[a]			
	b	t	b	t	b	t
Academic Choice School	.02	1.0	.05	3.0	.05	3.1
Grade (+ = 12th higher)	.01	0.3	.30	18.8	.30	18.9
Sex (+ = Females higher)	-.09	-5.4	.02	0.9	.01	0.4
Race (+ = Whites higher)	-.01	-0.2	-.10	-6.2	-.11	-6.2
SES	.12	6.4	.25	15.3	.26	15.9
College Plans	___	___	___	___	.08	5.2
Sample size (n)	3450		3450		3450	
Multiple correlation (R^2)	.023		.153		.160	

a. College Related Activities is a scale based on four questionnaire items:
"In the past 12 months, have you ever written or talked to a college official about going to his college?"
"Have you ever read a college catalog?"
"Have you talked in detail to a school counselor about specific colleges?"
"Have you talked in detail to teachers about specific colleges?"

assignments, as well as placing less restrictions on student behavior in the classroom. In this study, we also measured the family decision-making style to gauge how much students shared responsibility for decisions made concerning them in the home. One of our interests in this research was to examine the effects on student "self-reliance" from experiences in schools and families that gave them regular practice at exercising and testing independent judgments. The self-reliance scale was drawn from student questionnaire responses intended to measure an individual's general willingness to act without depending upon peer approval or close supervision.

Table 2 gives the results of a multiple regression analysis of student self-reliance on school openness, family decision-making style and a number of other family and background variables. These results indicate that both school openness and (especially) family decision-making style are significantly related to student self-reliance, with the other variables taken into account: students from more open schools and with greater involvement in family decisions are found to be more highly self-reliant.

One interpretation of these findings is that we need to give regular practice in exercising autonomy and independence to produce individuals who are capable of resisting peer pressures with enough confidence in their own standards and decisions. If schools continue to make most of the important decisions for students, they will delay the development of self-reliant individuals having a strong set of internal standards to guide behavior.

Summary

The research presented here is only a beginning to the studies and practical experiments needed to learn how schools may develop and appeal

TABLE 2

SUMMARY OF MULTIPLE REGRESSIONS OF SELF-RELIANCE ON OPENNESS OF SCHOOL PROGRAM AND STUDENT FAMILY AND BACKGROUND CHARACTERISTICS, BY EDUCATIONAL LEVEL

(b = standardized regression coefficient; t = associated test statistic)

Independent Variables:	Self-reliance			
	Secondary		Elementary	
	b	(t)	b	(t)
School Authority:				
Openness of school	.037	2.8	.068	3.0
Family Authority:				
Decision-making style	.246	19.0	.288	22.0
Rules in the home	-.005	-0.4	.069	2.8
Background:				
Age	.225	19.2	---	---
Sex(+= Males higher)	-.006	-0.5	-.096	-4.2
Race(+= Whites higher)	-.009	-0.7	.020	0.9
Parents' education	.126	8.8	.011	0.4
Possessions in the home	.059	4.2	.064	2.5
Family size	.060	5.0	.036	1.6
Sample size (n)	5661		1700	
Multiple correlation (R^2)	.190		.139	

to the long-range goals of students. These results, while indirect, give reason to expect that the authority and choice systems established in our schooling processes may be an important factor in developing new motivational sources for learning. If we are to appeal to students long-term goals as a reason to work hard in school, methods are needed to encourage them to seek information about long-range outcomes and to persuade them of the relevance of schooling experiences for these goals. An authority system that makes all the important decisions for students, and that limits practice at self-reliance, appears to be the usual school practice and opposite to what is needed to foster development of internal motivation.

Social Network Models and Social Demography Theories

Nancy L. Karweit

The peer group has been viewed by researchers and educational professionals as a very influential force in schools affecting student learning processes and attitudes. However, with a few exceptions, we have not systematically studied the peer group formation process in schools or the ways in which individual student behavior depends upon peer group influences. In fact, most research has not distinguished separate components of the processes of peer group formation and peer group influence; and most studies have implicitly assumed there are a limited number of peer group reference points in a given school.

This paper will present some evidence to argue that separate components of the peer group processes depend upon different school and student variables, and that it is important to consider the variety of peer groups that may function as different points of reference for individual students in the same school.

When researchers consider the effect of peer groups they typically mean the influence of friends. The friendship formation process has been viewed as a multi-stage filtering process in which friendships are formed by the sequential elimination of possible candidates. Different attributes are important at different phases of the friendship formation process.

In the first stage, accidents of proximity determine who is more likely to interact with whom, setting the stage for possible friendship formation. We propose that assignments of students to a particular

grade and curriculum set out boundaries within which friendship choices are more likely to occur. That is, school differentiation practices affect the opportunities for contact among peers and consequently the peer process itself. At the next stages of the filtering process other characteristics of individual students influence their likelihood of becoming friends. Characteristics which may attract one person to another may be unique to that pair or to that group of friends. A common interest in some sport or a common dislike for another group of students may make certain students friends.

We consider three classifications of filters. Characteristics such as curriculum, grade in school and extra-curricular activities are factors which affect the opportunities for interaction and are classified as proximity filters. The next set of filters encountered are background filters, including such characteristics as race, sex, ability, and family origins. Last, we consider value filters, including the student's general orientation toward school and academic pursuits in particular.

Proximity Filters

Three proximity filters were studied with data obtained from 20,345 students in 20 high schools: proximity filters influenced by grade level, by curriculum and by participation in extra-curricular actitivities.

(1) Grade Level. In this data set, there is a pronounced tendency for students to name same-grade students as their friends. For first-choice friendships, 86 percent of the girls and 76 percent of the boys selected a same grade classmate. This strong tendency for same grade friendships is likely due to the rigid differentiation of students into

classes and activities on the basis of grade in school.

(2) Curriculum. The selection of same curriculum friends was similarly a pronounced friendship pattern in the Twenty School Data. Curriculum placement was a predominant factor in friendship selection in every school, and thus is certainly a consequential effect of school organization practices.

(3) Extra-Curricular Participation. Participation or non-participation in extra-curricular activities can also be viewed as a proximity filter. Many students do not participate at all in the available clubs and activities, and these students choose friends who are similarly not involved. Likewise, those students who are heavily involved in activities (3 or more) tend to choose friends who are also high in participation.

Participation in extra-curricular activities may change the friendship selection pattern by altering who comes into contact with whom. These activities offer a meeting place for students of different grades and curricula who would normally not come into contact with one another. If extra-curricular activities do serve such a purpose, cross-curricular and cross-grade choosing should increase with the participation rate. Table 1 contains the percentage of cross-curricular choices for those students participating in none, one, two and three or more activities.

Reading down the rows, the table indicates that cross-curricular choosing increases monotonically with increasing participation. In other tabulations, we did not find a statistically significant relationship between number of activities and cross-grade choosing. We surmise that the tendency for same-grade choosing is a very stubborn pattern, not readily altered, compared to cross-curricular choosing.

Table 1

Proportion of Students Naming Other Curricula

Students as Friend by Participation in Extra Curricular Activities

Number of Activities	BOYS		GIRLS	
	Not college prep. picking college prep.	College prep. picking not college prep.	Not college prep. picking college prep.	College prep. picking not college prep.
0	.139 n=2007	.272 n=1695	.073 n=1639	.368 n= 692
1	.175 n=1343	.461 n=1014	.089 n=1564	.383 n=1313
2	.194 n= 309	.537 n=1101	.124 n= 764	.492 n=1319
3+	.327 n= 107	.648 n= 518	.175 n= 503	.545 n=1036

At the next stage of the filtering process, family and other background factors of adolescents might be expected to influence friendship choices and peer associations. Using the same data, we examined the influence of socio-economic status variables including father's education, mother's education, father's occupation, family size, father's income, and number of books in the home. The correlations between students and their first friendship choice on these variables were not large--ranging from about .10 to .28--with the highest relationships for parents' education and occupation. We found that girls are more similar to their friends than boys on a variety of these factors. Combined with this greater similarity is a greater tendency to reciprocate friendship choices, which suggests that girls are more likely to be situated in clusters of cohesive and homogeneous friendship groups.

The proximity and background factors discussed thus far narrow the range of candidates for friendship choices. We also examined the similarity of friends with respect to their status in the informal social system of the school, and with respect to their evaluation of academic pursuits as a next stage in the filtering process. To examine the similarity on status, we used a fifteen-item index, comprised of such attributes as access to and use of an automobile, frequency of being named as leading crowd member or of being named most popular. Again, girls were typically more like their friends on the status measure than boys, correlating .52, in comparison to a .43 value for the boys.

We were also interested in knowing how similar friends are in their general orientation toward school life. The students indicated whether

they wished to be remembered in school as a 1) brilliant student; 2) leader in activities (girls), athletic star (boys); or 3) most popular. Using the students' responses to this question as an indication of the importance attached to these dimensions, we found that students tended to select similarly inclined students as friends.

To examine the similarity of friends on academic orientations, we looked at several variables indicating academic orientations--grades, academic values, educational expectations, and academic self-concept. The correlations obtained were in the range .15 to .45, with the highest similarity obtained for academic marks received. In all cases, the girls' friendship pairs were more similar than were the boys.

Thus far we have indicated the nature and extent to which students select similar other students as their friends. This tendency to select similar others as friends implies that within a school different students experience quite different interpersonal settings. Characteristics of the school as well as individual factors influence the nature of this interpersonal environment. In addition to affective ties, other relationships among students within schools may be important in shaping student behavior. We now explore the proposition that multiple reference points exist within schools by focusing on reference groups as defined by curriculum placement. Our interest here is on the knowledge of, and influence of, fellow students' educational aspirations. We hypothesize that students may have different perceptions about who is academically competent and that these perceptions depend in part on curriculum placement. If courses are structured by curriculum, then perceptions of "best student" may differ for differing curricula.

Evidence that visibility of academic competence depends upon curriculum placement is provided in Table 2. Students were asked to name the "best student" in the school. We determined the curriculum enrollment of this "best student" and of the person selecting him; the totals across all schools are presented in Table 2. For students who are not in college preparatory programs, 21.2 percent of their choices as "best student" are similarly not in a college preparatory curriculum. Only 5.8 percent of the choices of the college preparatory students, however, indicated non-college preparatory schoolmates as best friends. The difference in these percentages indicates that the visibility of "best student" status is related to curriculum placement. It appears that college preparatory students are usually defined as the best students, but less so by non-college preparatory individuals.

A relevant reference group, besides being visible to the student, must also be meaningful to the individual in order to have influence. To examine meaningfulness, we used measures which indicate who the student admires or wishes to be like. The indication of admiration suggests that this person or group of persons is a meaningful reference group. Again, because curriculum placement so profoundly affects with whom one comes into contact, we proposed that the student's admiration relationships would differ along curricular lines. This proposal is supported in the data where we find that the non-college preparatory students select 54 percent of their same curriculum classmates as someone they would like to be like and 48 percent as someone with whom they wish to be friends. The college preparatory students chose only 14 percent

Table 2

Distribution of Choices by Curriculum

	Chooser Not CP			Chooser CP		
	Chosen			Chosen		
	Not CP	CP		Not CP	CP	
Best Student	.212	.788	(n=5677)	.058	.942	(n=8892)
Like to be like	.539	.461	(n=5840)	.146	.854	(n=8635)
Wish to befriend	.478	.522	(n=4324)	.200	.800	(n=6923)

of the non-college preparatory students as someone they would like to be like, and they selected only 20 percent of the non-college preparatory students as someone with whom they would like to be friends. These percentages suggest that there is some overlap of reference populations for the two groups, mainly through the over-selection of college preparatory students, but the differences in the selection patterns are appreciable.

This evidence suggests that the use of a school average to characterize reference populations of schools is likely to be inaccurate. Differences in the segment of the population which is either visible or meaningful appear to occur along curricular lines, suggesting that reference populations are more curriculum-specific than school specific.

Summary

These preliminary findings only begin to suggest what we may gain in our understanding of the peer group processes by going beyond rudimentary measures of peer group attachments and by specifying components of the peer group formation and influence processes. For example, measurements from the social network perspective can be used to more faithfully portray the associational structure of a school and to study how this structure is related to school organizational and demographic characteristics. With more realistic measures of peer group characteristics and with more attention to the components of the peer group processes, we stand to not only learn more about the true power of peer group factors on student development, but also to reveal how properties of school organization (such as curriculum and grade assignments) may facilitate or hinder these processes.

FAMILY AND SCHOOL INTERACTIONS AND MAIN EFFECTS ON NON-ACADEMIC OUTCOMES[1]

Joyce L. Epstein

[1]This research is supported by a grant from the Office of Child Development, U.S. Department of Health, Education, and Welfare.

In the 19th century, the practices and goals of the family matched the practices and goals of the schools. For example, the clergy gave sermons reviewing the duties of parents and school masters, the aims of education at home and at school, and the means to reach the well-defined goals. The prescriptions for education at school and for child-rearing at home were the same; a family-school "match" was inherent in the social-educational system.

Today, the practices and goals of schools and families are divergent. Elementary and secondary schools have begun to diversify their practices and to revise the student's role in terms of the amount of authority students share with their teachers, and the amount of student participation in classroom academic decisions. The natural environmental contrasts of families and schools based on divergent philosophies of education and child-rearing permit and encourage the examination of the effects of congruent and incongruent environments on child development from a sociological perspective.

Psychologists have established several expectations from their studies of trait-treatment interactions. They assume that interaction effects will improve our understanding of the learning process and will alter the way we organize and dispense education to individuals. This paper focuses on the interaction of social environments--the home and the school. We have extended the definition of the preferential interaction model, which is based on a match between an indivdual's preferred learning style and the style of instruction offered to the individual. We assume that the influential environment a person experiences at home may produce a preferred style for learning which could be "matched" by the school environment to optimize motivation and learning. In particular, students from more "open" families that provide many opportunities for child participation in decision-making at home may make greater progress in classrooms where the

students partake in important academic decisions; and students from more authority-centered families may progress best in classrooms where the teachers have total responsibility for important academic decisions. Thus, a positive effect of a "match" or congruence of environments should be noted for some student outcomes, particularly those where comfort and familiarity with an environment is an important determinant of the outcome. On the other hand, for other types of student outcomes, it may be the case that a mismatch, or incongruence promotes greater growth because of the challenge and stimulation that is encountered. If no interaction between environments is evident, we must consider whether particular environmental conditions optimize student development on several outcomes.

The sample for this study is 4079 white students from grades 6, 7, 9 and 12 in ten middle schools and six high schools in a Maryland district. The district was selected because it is one of the few in the nation that had developed significantly different school environments at the secondary level. At each grade level, there are schools in this sample with "open" instructional programs and other schools with "traditional" programs. The student population also provides significant variation in family characteristics, both in social class and in family authority systems.

Three dimensions of the family environment are key independent variables in the analyses. Two measures assess the family authority-control system: family decision-making style (which concerns the nature of social-communication between parents and child) and level of regulation (which concerns the extent to which specific rules control the child's activities at home). The third family environment measure is socio-economic status.

Two aspects of the school environment are featured. The first measure,

openness of the instructional program, is a continuous aggregate measure of the degree of student choice, individualization, and physical freedom in the classroom. The second measure, classroom decision-making style, is parallel in construction and content to the family decision-making scale, but focuses on teachers rather than parents as authority figures with whom the child communicates and shares responsibilities.

Three types of outcome variables entail seven measures of student development. Personality variables are typified by measures of self-reliance, self-esteem, and control of environment. School coping skills are represented in measures of perceived quality of school life, prosocial (school-task) behavior, and disciplinary adjustment. Goal orientation is assessed by students' college plans. Table 1 shows the 3 family environment variables and the 7 outcome variables.

To address the question of school-family environment interactions, the test for homogeneity of group regressions was performed to determine whether the regression equations are the same for the contrasting family environment subgroups. If the null hypothesis for homogeneity is rejected, we would have evidence of a significant interaction between the family environment and at least one other family, school, or individual background variable. The tests for interactions were conducted separately for three family environment dimensions. The left side of Table 1 reports for each outcome the grade levels for which the tests were significant. There are very few significant interactions: Of eighty-four tests, only 15 were significant, and the pattern of the significant interactions is not interpretable. For example, for grades 6 and 9 interactions were significant for self-reliance with different family environmental measures, but

SUMMARY TABLE: Grade levels with significant interaction effects and main effects of family environmental dimensions for seven outcome variables.[a/]

Outcome	Family Environmental Dimensions					
	Interaction Tests[b/]			Main Effects Tests		
	Family decision-making style	Level of Regulation	Socio-economic Status	Family decision-making style	Level of Regulation	Socio-economic Status
Personality						
Self-reliance	6	9	6	6,7,9,12	-	7,9
Self-esteem	9,12	9	12	6,7,9,12	9	-
Control of environment	7	-	-	6,7,9,12	6,9	-
School Coping Skills						
Quality of school life	-	12	-	6,7,9,12	6,7,9	-
Prosocial school-task behavior	-	-	7	6,7,9,12	6,7,9	-
Disciplinary adjustment	6,12	6,7	-	6,7,9	7,9	-
Goal Orientation						
College plans	-	-	9	9	12	6,7,9,12

[a/] The direction of results and other details of analyses are presented in the full report.

[b/] Some of the significant interactions are the result of family-school variable interaction and some are the result of family-family variable interaction.

neither pattern is evident for grades 7 or 12. Some of the significant interactions were caused by family-school variable combinations; some were caused by family-family variable combinations. It is clear that there is no consistency across grades by outcome, within grades across outcome by family environment subgroup, or by any other explicit pattern.

In addition, the increase in the percent of variance explained due to the multiple model is very small--less than four percent in all but two instances. We do not greatly increase our understanding of the process of development using a multiple model over a common model that accounts for students' family subgroup membership.

As the standard follow-up of insignificant or inconclusive interaction effects, tests of main effects were conducted to consider differences in subgroup intercepts. These tests indicate whether the mean scores of two groups are significantly different within the multivariate model. The tests (reported on the right side of Table 1) show, across grade levels, consistent, significant main effects of the family decision-making style variable for self-reliance, self-esteem, control of environment, the three school coping skills, but not college plans. The mean scores for students from the high family-style subgroup are significantly higher than the scores of students from the low family-style subgroup, after controlling on all other family, school and individual characteristics.

Less dramatic main effects occur for level of regulation (family rules), but one interesting pattern emerges. The analyses presented in the full report show that for each significant main effect of level of regulation, it is the students with less regulation at home who are less positive toward school, less likely to fulfill school task demands, or less well adjusted. This effect is contrary to the pattern of main effects for family decision-making style, where children from families offering more participation in decision-making are more

positive on the same outcomes. It appears that the social-communication aspect of the family-authority system is separate and quite different in effect from the control aspect at home (measured by level of regulation). The most positive effects for school coping skills appear to be produced by greater shared decision-making and relatively high control at home.

Finally, there are sizeable main effects in every grade of parents' education on only one variable--college plans. College plans are not much influenced by family decision-making style or level of regulation, and the other outcome variables are not much influenced by social class.

In the full report, other analyses that compare the unique effect of family social class, family authority system, school environment, and individual characteristics, restate these findings about the family and show that the school environment has a small but significant influence on school coping skills, net of the family environment or individual abilities.

To summarize, the tests for interaction provide no evidence that, for the seven student outcomes, we can greatly minimize error of prediction by treating family environmental subgroups as if different processes operate in different school settings. Certainly, the results do not justify a decision to assign students to alternative classrooms based on alternative family environments, nor do they suggest that families with particular child-rearing practices should seek out matching school settings with the belief that the congruence between home and school will greatly benefit their children's development on these non-academic outcomes. Although there may be other reasons for seeking congruent settings, the justification does not rest on findings of statistical interactions.

Instead of patterns of interaction, there are consistent main effects that suggest certain types of environments will, on the average, be especially beneficial. Family environments that emphasize trust, freedom of expression, and shared power or shared authority among parents and children encourage greater

self-reliance, control of environment, and school coping skills, In addition, at least a moderate level of regulation at home appears necessary for positive school coping skills and the successful utilization of school for personal adjustment and advancement. School environments with the same emphases appear to promote positive school attitudes and adjustment. These generalizations are true for the middle and high school years (grades 6-12). The results strongly support the fact that throughout adolescence, children are influenced in important ways by what families and schools do and how they do it.

In this study, the amount and kind of student participation in decisions at home and at school affect student success in school and growth as individuals as much or more than family social class. While social class is a convenient measure that has been used often in the past as a substitute for other aspects of the family environment, and while it remains a critical control variable, it does not adequately represent the more complex conditions of family life such as the authority-control system. It is important to recognize that more specific measures of family and school environments are necessary if we are to understand the processes of education and child development.

If the outcomes studied here are indeed goals of schools, this research suggests that schools will be more successful if they work with families throughout students' school careers to implement in the schools (and to encourage families to offer) opportunities for important decision-making by youngsters. For several outcomes schools have less influence than the family. It would be appropriate for schools to consider specific models of organization that create instructional emphases that more closely resemble family practices.

DIFFERENTIAL EDUCATIONAL PAYOFF MODELS AND THEORIES OF THE DIVERSITY OF HUMAN TALENTS

Linda S. Gottfredson

The most common question that parents and students probably ask about the effects of schools is "How valuable is education for getting a good job?" Americans have traditionally assumed that education is an important road to success, and educational levels have risen dramatically in the last century. But as educational levels have been rising, so too have doubts about the value of education. This growing scepticism has been accompanied by the growth of a vast literature attempting to estimate just how fair and just how valuable school is for promoting occupational success.

Two important assumptions underlie most of this research. The first is that human talent can be ranked along a single dimension. When researchers or educators speak of ability, they are generally referring to one of several highly correlated measures of intellectual ability--grades, academic aptitude test scores, or intelligence test scores--and both students and schools are evaluated primarily according to <u>these</u> criteria. The second assumption is that education contributes to occupational success in the same way in all lines of work. The payoffs to education have been estimated using different methods and for different social groups, but with few exceptions, estimates are not made separately by line of work--for example, for social service, sales, science, or the arts.

Theories on the diversity of human talents challenge both these assumptions. Job analysts and vocational psychologists provide well-documented evidence that occupations at all levels vary considerably in the type of skills they require and reward. For example, some jobs require skills primarily for working with people, whereas others require

skills for working with data or things. We might expect that schools do not foster all the types of talents that are important in the occupational world. In turn, we would not expect education to be as valuable in the lines of work that require primarily non-academic talents.

I examined two types of payoffs--income and occupational prestige--for men in different kinds of work. The sample consisted of 27,000 white men in the 1970 census. I used John Holland's occupational classification which groups occupations into 6 major categories according to job activities and competencies required. These 6 clusters can be conceptualized as 6 different occupational ladders, each requiring different skills for climbing higher in income or prestige. This scheme is widely used in counseling and vocational psychology, and its categories are listed in Table 1. The Artistic category has been omitted from the table because it is very small. I expected that if the payoffs to years of education were examined separately within each of these types of work, additional years of education would be more valuable in those types requiring academic rather than non-academic talents.

The analyses revealed major differences in the payoffs to education by type of work. Some of the observed differences in income and prestige do not challenge the two assumptions I mentioned earlier. For example, the Realistic type of work (manual and skilled trades work) requires little schooling, is not prestigious, and pays little on the average; the Conventional type (such as clerical) work requires more academic skills and is generally more prestigious and better paying; Investigative work such as science and medicine requires much education, is quite prestigious and often well paying. However, other differences <u>do</u> contradict

Table 1

Differences in Income and Prestige Associated with Years of Education: White Men Employed Fulltime by Type of Work (1970)

Type of Work	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Percent of men with education of:[a]			Mean income of men with:[b]		Mean prestige of men with:[b]		Correlations of education with:[b]	
	12+	13+	16+ yrs	12 yrs	16 yrs	12 yrs	16 yrs	Income	Prestige
Enterprising type: sales management	79	46	26	12600	19570	48	52	.36	.38
Investigative type: science, medicine	95	62	47	10910	16640	50	65	.55	.76
Conventional type: office, clerical, accounting	83	47	24	9770	15080	45	53	.36	.41
Realistic type: manual, skilled trades, some engineering	48	11	3	9320	13960	36	49	.31	.34
Social type: education, social service	88	69	59	9430	11347	44	58	.28	.71

[a] Men aged 26-65.

[b] Men aged 36-65.

the two assumptions about talent and the value of schooling. The Enterprising type of work (such as sales and management) is often high paying but does not require a high education nor is it especially prestigious. In contrast, the Social types of occupations such as teaching and social service generally require extensive education, are generally prestigious, but do not pay well.

There appear to be two especially important differences in the payoffs to education, and these are illustrated in Table 1. First, although higher education leads to higher income and prestige in all types of work, it leads to a different mixture of income and prestige. Columns 4 through 7 in the Table indicate that higher levels of education lead to high levels of both income and prestige in Investigative work, but not in the other fields. Increased education leads primarily to high income, but not high prestige, in Enterprising work, but to the opposite pattern in Social occupations--that is, to high prestige but not high income. Education leads to only moderate increases in either income or prestige in Realistic and Conventional work. To the extent that education is a path to success, it leads people in somewhat different directions in the different types of work.

The second difference is that education is more important in some types of work for moving people along those paths to success. The correlations in the last two columns suggest that education is least important in Realistic work, somewhat more important in Enterprising and Conventional work, and quite important in Investigative and Social occupations--though as I just suggested, the types of payoffs (income versus prestige) may differ. To illustrate, education is correlated .3 to .4

with both income and prestige in Realistic, Conventional, and Enterprising work. Although education is highly correlated with income only in Investigative work, it is correlated over .7 with prestige in both Investigative and Social occupations.

Differences in the use of academic competencies on the job might explain much of the difference in payoffs to education among people in the Realistic, Conventional, and Investigative types of work, but they cannot explain the patterns for Social and Enterprising workers. Unlike the first three types of work, Enterprising and Social occupations require considerable skill working with people--the former for selling, persuading, managing, and leading, and the latter for teaching, curing, and helping. We would not expect academic skills to be as important for success in these types of work relative to non-academic skills, and we might expect that academic training typically does not provide these non-academic skills. But as shown earlier, there are large differences between these two types of work. Although educational differences are more important for predicting success within Social than in Enterprising work, men in Social occupations have lower incomes despite their higher educational levels. One hypothesis would be that the most intellectually talented are drawn into Enterprising work <u>regardless</u> of their education, but other research shows that this is not the case.

Differences in the use of academic competencies on the job cannot explain all the differences in payoffs, so other job characteristics must be examined. Table 2 summarizes three additional differences among jobs which appear promising for explaining differential payoffs. The last line of that table summarizes the general importance of education for

entering and advancing within each type of work. The second job characteristic which may increase the importance of education is the difficulty of evaluating worker performance. If performance is difficult to evaluate, employers are likely to prefer the job applicants with the highest educational credentials in order to assure that they are hiring the best workers. For example, sales and clerical performance is much easier to measure than is performance in social service work, so educational credentials are less likely to be used as indicators of worker competence in sales and clerical work. Third, if employers or clients stand to gain or lose a great deal because of differences in worker performance, then workers with higher educational credentials may be preferred in order to minimize risks--the assumption being that the higher their education, the more capable workers are in numerous ways. For example, educational credentials may be more important for salesmen and managers than for accounting or production workers partly because salesmen and managers are more likely to seriously affect the viability of their organizations. Fourth, the social values reinforced by schools are congruent with the values reinforced in some types of work, but not in others. Intellectualism, humanism, and a broad world view are all characteristic goals of schools--particularly of colleges --and are also dominant values in Investigative and Social occupations--but not in Realistic, Enterprising, and Conventional work, where practicality, power, and materialsim are more dominant values. Therefore schools can be expected to be hospitable environments for aspirants to some types of work but not for others.

As I mentioned earlier, research on the income and prestige payoffs to education has generally assumed that the payoffs are uniform across

Table 2

Four Predictors of the Importance of Education and Speculation about the Degree to which they Characterize Different Types of Work

Job Characteristics	Type of Work				
	Realistic (e.g. skilled trades)	Conventional (e.g. clerical)	Enterprising (e.g. sales)	Social (e.g. social services)	Investigative (e.g. science)
(1) Use of academic competencies on the job	low	mod	mod	mod	high
(2) Difficulty of evaluating worker performance	low	low	low	high	mod
(3) High risk/high gain from variable worker performance	low	low	high	high	high
(4) Congruence of occupational values with educational system values	low	low	low	high	high
Importance of Education	low	mod	mod	high	high

all types of work. My results contradict this assumption, and I have speculated about why these differences in payoffs exist. Differential payoffs must be examined in more detail, but if the large differences are replicated, they have important implications for educators and researchers. First, the results suggest that differences among occupations and labor markets must be taken into account when assessing the value of education for promoting occupational success. The results confirm one thing most people have assumed--that more education means more money and prestige on the average in all fields of work. But they also show something that people tend to overlook--that the same level of education brings very different returns in different lines of work. For example, a college degree brings less income on the average in education and social service work than does a high school diploma in sales and management. Although this information is useful for any student deciding whether or not to invest in a college education, it may be especially useful in designing programs to help minorities achieve income equality. In the past, black college students have disproportionately entered the low-paying but prestigious Social occupations and relatively few have entered Enterprising work although it generally requires less education and pays better.

In addition, the speculations about why the differences exist have implications for designing more effective educational programs. I suggested, for example, that schools have generally promoted the occupational values and competencies for some types of work but not for others --for example, for science but not sales. This may partly explain the growing public scepticism about the value of a college education that has accompanied rising college enrollment rates. Colleges may either be

failing to adequately prepare students for some occupational markets or they may be disproportionately increasing competition in others by channeling students into only limited segments of the labor market.

It is not clear which non-academic talents schools are ready or willing to foster. Verbal and quantitative skills, abstract and complex thinking, teaching and helping skills are valued and encouraged by the formal educational system. Some competencies--such as artistic and leadership skills--are more often considered auxilliary goals. But fostering other skills such as the ability to sell products or to manage people for organizational or material gain are often considered either irrelevant or contrary to the goals of education.

Although schools could foster more diverse types of talents, it is not clear that this should be a major responsibility of schools--especially below the college level. Nevertheless, junior and senior high schools could serve their students better by emphasizing that academic talent is only one of a variety of talents highly valued in the occupational world, by providing opportunities for students to develop those other talents <u>in</u> schools and in work-study programs, and by making clearer to students the routes to obtaining those skills both within and outside the formal educational system.

DISCUSSION

Sarane S. Boocock
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The papers from the Hopkins group interested me for several reasons. One is a very practical reason--I have been trying to do a revised version of a book I did several years ago on the sociology of learning, so I've used the papers as guidelines for what I'm going to have to change, what I'm going to have to update, to rethink. A more general interest is that the papers as a whole touch upon the kinds of structural dimensions which really lie at the core of sociology of education. In particular, I think the papers have something to say about two of the most important of these structural dimensions--the structure of authority in schools and school systems and the reward structure.

The papers suggest a number of ways in which these two kinds of structure are related to each other. It's interesting that one of these dimensions--authority--reflects an area where there's been considerable change in schools in the last five years or so, while the other one--the reward structure--seems to be an area where, as Slavin has suggested, nothing much has changed. We're still working with the same kind of reward structure that I wrote about as the traditional structure almost ten years ago.

If there's anything that surprised me about schools in the last few years, it's the speed with which they have adopted the open classroom; really changed over to a new kind of authority and a new view of what children and students are like. We've moved rather far from the kind of classic Durkheimian model of schools, in which the teacher is the authority to whom everyone acquises, where students are treated quite universalistically and quite differently from the way they are in their homes--although I suspect that Durkheim's argument still holds that schools

reflect the societies in which they take place, that schools are the places where societies recreate themselves. To some extent the openness of the classroom may reflect changes in the way that children are treated outside of schools. It is probably true though, that life in classrooms as Philip Jackson described it in his book--where kids are crowded next to each other, not allowed to speak to each other or to move around, where they're locked into a rigid and ritualistic schedule--is a disappearing phenomenon in our society. And the McPartland and the Epstein work would seem to support the argument made by Dreeben in his paper in the revised edition of the Handbook on Teaching, that the open classroom reflects a real change in the technology of teaching. In particular, it reflects a change in the authority structure of schools.

On the other hand, Slavin's analysis points out that the reward structure has not changed. He identifies three kinds of reward structures --the competitive, the individual, and the cooperative reward structure. He also presents some data from previous work of his indicating that a cooperative reward structure does indeed seem to have some positive effects on both student performance and student attitudes toward academic learning. However, schools don't seem to have gotten this message.

Slavin's model also ties in nicely with some of the recent work of Dornbusch and his associates at Stanford on evaluation in schools. A major finding of Dornbusch's work is that minority students tend to get generally positive and often rather inaccurate evaluations of how they are doing in school. Thus large numbers of minority children have reported that they feel they're doing fine in schools, while other students (in schools which are rather more demanding) often report a high level of anxiety about their

school performance. It's possible that teachers do this inaccurate reporting out of a kind of "misguided" belief that this will raise the motivation of students, but Slavin's work suggests that this is not an effective strategy. Dornbusch suggests a rather more cynical interpretation, which is that teachers did not really expect much from these students, and preferred a pleasant climate in the classroom to the effort required and the conflicts which might result from pressing these students toward higher actual achievement. Slavin's suggestion of the use of a kind of handicapping strategy for rewarding students so that they try to better their own records strikes me as a much more humane, as well as a more realistic way to reward youngsters in school.

McPartland is also concerned with the reward structure--although he has pointed out an interesting differentiation between long- and short-term rewards. Presumably, Slavin's model is concerned primarily with short-term rewards. McPartland attacks the rather more difficult kind of reward (and my own experience in working with students is that it is terribly difficult to get them to be concerned with long-term rewards, because they simply don't have any future image of themselves). One of the reasons that a number of us became interested in simulation games at Johns Hopkins several years ago was that we were so struck by the inability of primary and secondary students to even imagine themselves ten years hence. So McPartland is attacking a very important problem: are there ways that you can manipulate the organizational structure of schools to induce students to think further into the future? McPartland offers a conceptualization of the student role as analogous to the consumer role, and he suggests that we put students in this position more

often than we do. I'm not sure that what we know about consumer behavior in this country lends one to have great confidence in people's capacities for intelligent performance in that role. But perhaps McPartland's suggestion could be qualified by the findings from Gottfredson's paper.

Gottfredson suggests that formal education is differentially relevant to different kinds of work, or to people headed toward different kinds of work. Thus it would be probably very meaningful for students who are headed toward investigative or social occupations to make a lot of choices about what they're going to take in school. It might be less meaninfgul for students headed toward the kind of occupations that are not closely correlated with formal education in the first place. One recommendation which would combine the insights from the McPartland paper and the Gottfredson paper and also a footnote in one of the papers to a finding of Karweit's (that school attendance can be very high when students, even in low income neighborhoods, choose their own high school) is that it is important to involve students in decision-making about what school programs to take. McPartland also makes an important distinction here between the involvement in decisions that really affect one individually and the kind of pseudo-decision-making that schools have traditionally allowed students in the form of student governments, student councils, and so on.

But at the same time, it's important according to Gottfredson to dispel students and employers of the notion that higher education, a college education, or certain kind of education is a necessary prerequisite for all kinds of work. I agree with Gottfredson that it's important to do this. I'm not sure how one goes about convincing employers that their kind of work does not really require workers to have that nice credential.

Finally, one comment about the Karweit paper (which uses a set of concepts and methodology which represents a rather major development in recent sociological research). In my department at Rutgers, we've been recruiting for a new member who has a specialty in methodology. What we have learned in the last few months is that virtually all the really good people in this country who have expertise in methodology are in some way involved in research on social networks. It seems to be a "calling card" among the brightest methodologists. Karweit's paper illustrates one way in which sociologists can use kinds of data that they haven't been able to use in the past in order to really say some things about social structure--which is what our profession is all about. Teachers have for a long time used sociometric data, sociograms, and such to gain some insights into the things they often don't see overtly about kids' preferences--their feelings toward other kids in the class. It has been impossible, until the development of recent computing capabilities, to use these kinds of data to answer general questions of social structure. Karweit's analysis illustrates the kinds of questions that can be addressed with the technology that is now available to us. Also, it suggests that some dimensions that we've tended to dismiss as not having a great deal to do with learning are more important than we thought. As I recall, in the first edition of my book on the sociology of learning, I devoted about a page to the variable of school size, and pretty much decided that it didn't really make much difference. You can't relate school size in any direct linear way to students' achievement. Karweit's data show that while there may not be a direct, immediate relationship of size to aggregate

student achievement, it does, indeed, have many subtle and important effects upon the kinds of relationships that students have with each other in schools.

Indeed perhaps the most important contribution of the entire set of papers from the Hopkins Center is in forcing us to re-examine some dimensions which have been dismissed in earlier research as not having important effects upon school outputs. The Hopkins research, using some relatively recent methodological tools as well as more sophisticated conceptual models, provide a richer, if more complicated, view of that baffling institution, the school.

DISCUSSION

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I want to make both some general comments and a few specific comments, and my comments in part are based on and reflect the rather major study in which we've been engaged at Michigan State for the past two or three years on elementary school social systems. I have little comment on the Gottfredson paper; it seems to me to be a very good contribution. One general observation is that we need somehow to recognize that a year of education in School A or in Track P may not be equivalent to a year of education in School B or in Track Q. I don't think that's available in the kind of census data that are used, but when we equate a year of schooling in one place to a year of schooling in another, we make the assumption that schools don't make any difference. The careful analysis of data in the State of Michigan would certainly deny that in a very definite fashion.

Some general observations about the papers: These are all papers that are coming out of a background of social organization and social context. I'm a little bit taken aback that a group of sociologists and social psychologists studying social context put so much emphasis on and conclude that the social context does not really function for different individuals. Slavin and McPartland, and to a lesser extent the Epstein paper, derive from the assumption that students are so different in fixed abilities, interests, and/or prior socialization that the schools should and perhaps can only perpetuate and cultivate those differences, rather than produce any kind of common outcomes. In that essence, it seems to me the assumption is that they're not dealing with the school as a social system, but dealing with how individual students--different individual students--are processed through it.

To some extent these sociologists have succumbed to the bell-shaped curve and the psychological model of individual differences. Slavin and McPartland seem to overlook the likely fact that most of the individual differences are the result of some social system effects which may also be modified by other social systems. Epstein's findings suggest that similar social systems have similar impact on students, and somewhat different impact than the impact of other social systems. I suggest that sociologists and social psychologists should discard the bell-shaped curve hypothesis of individual differences and the model of education that is based on it, as some of our psychologically-oriented colleagues such as Ben Bloom and Block have already done, and revive what Floyd Allport demonstrated back in the '30's--the J-shaped curve hypothesis of learned behavior. All students can and do learn very abstract, complex behavior such as language (when I say all, I mean ninety-nine plus percent), when the social system is designed to produce such learning. School social systems might produce similar results if designed to do so. But the model that we're following, as reflected in these papers--and it's not only in these papers, but generally--is that the social system of the school has to capitulate to individual differences.

Now, more specifically, Slavin in particular is the victim of the bell-shaped curve. He assumes that teachers give proper rewards for achievement but peers don't, and you can't do anything much about this. On the contrary, as Dr. Boocock has indicated in a study by Hernandez, Dornbusch, and Rodriguiz at Stanford, and as data from our elementary school study indicate, teachers are not much different from students in the

reward patterns. Teachers consistently give positive reinforcement to students for not learning, and in a small number of schools in which we have observed, you can distinguish very clearly between high achieving schools and low achieving schools by the patterns of reinforcement--or whether they're reinforcing students for learning what they're supposed to. Team competition rather than individual competition, we also find, is better in student learning; but it also changes the kind of reward systems that operate. Slavin's comment, "Realistic positive evaluation cannot be given to everyone," reflects the general assumption that some children are so stupid and so limited by previous experiences that you can't expect them to learn anything. Bloom and others, in the mastery-learning studies, largely contradict this. Language learning does also. Almost 100% of all the children in every society in the world learn the language of their associates. If the social system assumes that students can learn, and rewards only the acquisition of the appropriate behavior, a much larger proportion of the students will acquire that behavior. Now the system of the school, not only the peers but the teachers as well, rewards for non-learning.

Turning to McPartland's paper, this also assumes that students can be socialized to do certain things only if they're permitted to choose something else to do. Also, he seems to assume that many can't do what so many others can do. I would question, as Jim does himself, not to generalize from one case. My recent observations (of two high schools) indicate that providing wide choices and permitting students free choice results in lowering achievement through easy choices. In other words, giving a choice, as McPartland found, explains a small percentage of

their college plan-making, but it may at the same time not prepare them for college. In one high school with 360 courses to choose from--and no required courses--the most popular course is macrame. The top English courses were chosen by so few that they have been discontinued and are no longer offered. The few students who want such a course must take the bus to the junior college in town to get it. In the second high school with wide choices, the top level courses have been discontinued and are no longer available to students under any circumstances. So I am not at all sure that the findings indicated that giving more choice will produce higher levels of preparation for college, even though the students may make plans to go.

I would also be cautious about the effect of openness. Contrary to McPartland's findings, our data on 91 elementary schools in Michigan indicate that openness is negatively related to both mean self-reliance and mean achievement in the white school sample. Although it is positively associated with both in the black school sample, there is not much openness in any of the black schools. Student satisfaction contributes little to the explanation of vandalism, and so forth, as reported by McPartland. I would not have much confidence in those data either--particularly since it appears that the student is the unit of analysis (and with several thousand students you can get a significant difference rather easily) and in my judgment the variables such as openness and school rules are presumably school characteristics, not individual student characteristics. And I would raise the question of whether using the student as the unit of analysis, when you're dealing with such school characteristics, is appropriate.

Turning to further comments of the Epstein paper, because it's related somewhat to the McPartland paper, I think it is highly desirable to test the results of interaction between the socialization in the family and in the school. I'm not much surprised that there is little interaction between the two. Human beings can learn to behave in almost any way that the social system defines as proper. This study tends to substantiate that conclusion. The school main effects affect students from different kinds of families in about the same way. Schools are distinct social units, and students may learn distinguishably different behavior in those social units from what they learn from family units. Differentiated programming, then, is not likely to add very much to the performance and the acquisition of students in different kinds of families, as is pointed out; and I think that's a very appropriate result. Maybe the results (and I would raise the question because it is pointed out in the paper) derive from the fact that there were no black students in the sample. Maybe the results would be different for black students in black schools. Our elementary school research suggests that the school social system functions quite differently in black schools than in white schools. I would be cautious about generalizing about the results regarding openness from the data in one school district. Our data from a randomly selected, white elementary school sample produced different results. As mentioned earlier, openness of school is negatively related to mean self-reliance among white schools and quite significantly related in the high SES white school sample. And this effect persists when all other social system variables are controlled, so that openness, measured by similar instruments that the Hopkins people devised in a sample of elementary schools, at least in white schools and

particularly in upper SES white schools, is negatively associated with achievement; also with self-reliance. Differentiated programs are also negatively, although not highly so, related to self-reliance. School climate variables explain more self-reliance than openness or differentiation, or both of them combined. Mean self-concept of ability is only slightly related to openness, and even less to program differences, in the elementary schools.

Turning to Karweit's paper read by Thomas, let me concur that the school is not a completely homogeneous social system, and therefore it does not have identical socializing effects on all students. Furthermore, I agree that socioeconomic composition is not a good indicator of normative environment--although correlated with normative climate, socioeconomic composition is not a measure of it. We have only used it as a proxy, because we were disinclined to develop more appropriate measures. The tone of Nancy Karweit's paper suggests that the school is not a social system with any common norms, values, or beliefs; that it is only many different groups operating in one space. This I will challenge. I would suggest that we do not throw away the school as a social system unit simply because SES composition doesn't tell you about it's socializing characteristics. For example, although 55% of the first-friends of boys who want to be remembered as athletes also want to be so remembered, the other 45% of their first-friends do not want to be so remembered. Although grades and other academic values explain up to 20% of the friendship choices, most of the other 80% is probably explained within the boundaries of the school social system. In fact none of the subcategories used in this study explain the social choices very adequately. Perhaps there is

some total of school characteristics that have relevance for student behavior as well as the subgroups and subsegments of the school. The variance in school climate between classrooms in our elementary school study is partially explained up to 43% by simply knowing the school that the classrooms are in. Classroom climates are more like others in the same school than they are like classrooms in other schools. This suggests that the school is a viable unit of social system to examine. Perhaps the same is true with reference groups within the school, even though there are differences. There are differences in normative environment: both between schools, and between groups within schools; but, both sets of differences are likely to explain differences in student behavior. All I am suggesting is that we don't discard <u>either</u> as the explanation, simply because the proxy measures used for schools in the past are not good ones. Although not perfect, our measures explain much of the differences between schools--both in achievement, in self-reliance, and in self-concept. Similar measures of subgroup differences in norms, expectations, and so forth will add to the explanation of within-school differences, in my judgment.

One final comment--let us recognize the potential for explaining differences in learned behavior by the school social system and its subsystems, rather than succumb to the temptation to take the "easy route" and say that the school social systems can't make a difference. We have come to this state because we have used only input measures and other less accurate measures of the nature of the school social system.